In the Claims:

1. A method for quantizing an audio signal, the method comprising:

iteratively incrementing a quantization step size of each scale factor band of a current frame;

comparing a number of bits consumed in quantizing spectral lines in scale factor bands in the current frame to a specified bit rate;

determining whether the quantization step sizes in one or more scale factor bands are at a vanishing point; and

freezing the quantization step sizes in all the scale factor bands and exiting the quantization of the current frame when the number of bits consumed is at or below the specified bit rate.

2. The method of claim 1, further comprising:

grouping sets of spectral lines to form the scale factor bands in the current frame;

assigning an initial quantization step size to each scale factor band in the current frame; and

quantizing the sets of spectral lines in each scale factor band.

3. The method of claim 1, wherein the vanishing point comprises:

a quantized value of substantially close to value of '0'.

4. A method for quantizing an audio signal comprising:

determining whether a number of bits consumed in quantizing spectral lines in scale factor bands in a current frame is at or below a user specified bit rate;

if so, freezing the quantization step sizes in all the scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each scale factor band by a predetermined quantization step size;

determining whether the quantization step sizes in one or more scale factor bands are at a vanishing point; and

if not, repeating the above steps.

5. The method of claim 4, further comprising:

if so, freezing the quantization step sizes of the one or more scale factor bands that are at the vanishing point;

quantizing the spectral lines of remaining scale factor bands that are not at the vanishing point;

determining whether number of bits consumed in the remaining scale factor bands is at or below the user specified bit rate;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each remaining scale factor band by the predetermined quantization step size;

determining whether the quantization step sizes in all the remaining scale factor bands are at the vanishing point; and

if not, repeating the above steps.

6. The method of claim 5, further comprising:

if so, comparing the remaining scale factor bands with a perceptual priority chart;

dropping one or more of the remaining scale factor bands as a function of the comparison;

determining whether number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate in the current frame;

if so, freezing the quantization step sizes in all the remaining scale factor bands; and

if not, repeating the above steps and dropping one or more additional scale factor bands as a function of the comparison until the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate.

7. The method of claim 4, further comprising:

grouping sets of spectral lines to form the scale factor bands in the current frame;

assigning an initial quantization step size to each scale factor band in the current frame; and

quantizing the sets of spectral lines in each scale factor band.

8. The method of claim 4, wherein the vanishing point comprises:

a quantized value of substantially close to value of '0'.

9. A method for quantizing spectral information in an audio encoder comprising:

assigning an initial quantization step size to each scale factor band in a current frame as a function of a priority chart generated based on a perceptual model;

forming a first perceptual priority chart for the assigned scale factor bands;

determining whether number of bits consumed in quantizing spectral lines in scale factor bands in a current frame is at or below a user specified bit rate;

if so, freezing the quantization step sizes in all the scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each scale factor band based on the first perceptual priority chart;

determining whether one or more scale factor bands are at a vanishing point; and

if not, repeating the above steps.

10. The method of claim 9, further comprising:

if so, freezing the quantization step sizes of the one or more scale factor bands that are at the vanishing point;

forming a second perceptual priority chart by removing the one or more scale factor bands that are at the vanishing point from the first perceptual priority chart;

quantizing spectral lines of remaining scale factor bands that are not at the vanishing point;

determining whether number of bits consumed in the remaining scale factor bands is at or below the user specified bit rate;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each remaining scale factor band based on the second perceptual priority chart;

determining whether all the remaining scale factor bands are at the vanishing point; and

if not, repeating the above steps.

11. The method of claim 10, further comprising:

if so, comparing the remaining scale factor bands with the first perceptual priority chart;

dropping one or more of the remaining scale factor bands having lower perceptual priority as a function of the comparison;

determining whether number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate in the current frame;

if so, freezing the quantization step sizes of all the remaining scale factor bands; and

if not, repeating the above steps and dropping one or more additional scale factor bands as a function of the comparison until the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate.

12. An article comprising:

a storage medium having instructions that, when executed by a computing platform, result in execution of a method comprising:

determining whether number of bits consumed is at or below a user specified bit rate in a current frame;

if so, freezing the quantization step sizes in all the scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each scale factor band by a predetermined quantization step size;

determining whether one or more scale factor bands is at a vanishing point; and

if not, repeating the above steps.

13. The article of claim 12, further comprising:

if so, freezing the quantization step sizes of the one or more scale factor bands that are at the vanishing point;

quantizing spectral lines of remaining scale factor bands that are not at the vanishing point;

determining whether number of bits consumed in the scale factor bands is at or below the user specified bit rate;

if so, freezing the quantization step sizes in all the remaining scale factor bands and exiting the quantization of the current frame;

if not, incrementing quantization step size of each remaining scale factor band by the predetermined quantization step size;

determining whether all the remaining scale factor bands are at the vanishing point; and

if not, repeating the above steps.

14. The article of claim 13, further comprising:

if so, comparing the scale factor bands with a perceptual priority chart;

dropping one or more of the scale factor bands as a function of the comparison;

determining whether number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate in the current frame;

if so, freezing the quantization step sizes of all the remaining scale factor bands; and

if not, repeating the above steps and dropping additional scale factor bands as a function of the comparison until the number of bits consumed by the remaining scale factor bands is at or below the user specified bit rate.

15. An audio coder comprising:

an input module partitions an audio signal into a sequence of successive frames;

a time-to-frequency transformation module obtains the spectral lines in each frame and forms critical bands by grouping sets of neighboring spectral lines; and

an encoder coupled to the time-to-frequency module, wherein the encoder further comprises:

an inner loop module determines whether number of bits consumed is at or below a user specified bit rate in a current frame, wherein the inner loop module freezes quantization step sizes in all the critical bands when the number of bits consumed is at or below the user specified bit rate; and

an outer loop module increments quantization step sizes of each critical band by a predetermined quantization step size when the number of bits consumed is above the user specified bit rate, and wherein the outer loop module increments quantization step sizes and determines whether quantization step sizes in one or more critical bands are at the vanishing point, and wherein the outer loop module freezes the quantization step sizes of the one or more critical bands that are at the vanishing point.

16. The audio coder of claim 15, wherein the outer loop module quantizes spectral lines of remaining critical bands that are not at the vanishing point, wherein the inner loop module determines whether number of bits consumed by the critical bands is at or below the user specified bit rate, wherein the outer loop module freezes the quantization step sizes in all the remaining critical bands and exits quantization of the current frame, wherein the outer loop module increments quantization step sizes of the remaining critical bands by the predetermined quantization step size, wherein the outer loop module determines whether the remaining critical bands are at the vanishing point, and wherein the outer loop module increments quantization step sizes until the user specified bit rate is met when none of the remaining critical bands are not at the vanishing point.

17. The audio coder of claim 16, wherein the outer loop module compares the remaining critical bands with a perceptual priority chart when all the critical bands are at

the vanishing point, wherein the outer loop module drops the one or more of the critical bands having a lower perceptual quality as a function of the comparison, wherein the inner loop module determines whether number of bits consumed by the spectral lines in the remaining critical bands is at or below the user specified bit rate in the current frame, wherein the outer loop module freezes the quantization step sizes of all the remaining critical bands when the number of bits consumed by the remaining critical bands is at or below the user specified bit rate, and wherein the outer loop module drops one or more critical bands until the user specified bit rate is met when the number of bits consumed by the remaining critical bands are above the user specified bit rate.

18. A system comprising:

a bus;

a processor coupled to the bus;

a memory coupled to the processor;

a network interface coupled to the processor and the memory; and

an audio coder coupled to the network interface and the processor, wherein the audio coder further comprises:

an input module partitions an audio signal into a sequence of successive frames;

a time-to-frequency transformation module obtains the spectral lines in each frame and forms critical bands by grouping sets of neighboring spectral lines; and

an encoder coupled to the time-to-frequency module, wherein the encoder further comprises:

an inner loop module determines whether number of bits consumed is at or below a user specified bit rate in a current frame, wherein the inner loop module freezes quantization step sizes in all the critical bands when the number of bits consumed is at or below the user specified bit rate; and

an outer loop module increments quantization step sizes of each critical band by a predetermined quantization step size when the number of bits consumed is above the user specified bit rate, wherein the outer loop module determines whether one or more critical bands are at a vanishing point, and

wherein the outer loop module freezes the quantization step sizes of the one or more critical bands that are at the vanishing point.

19. The system of claim 18, wherein the outer loop module quantizes spectral lines of remaining critical bands that are not at the vanishing point, wherein the inner loop module determines whether number of bits consumed in quantizing the spectral lines in the critical bands is at or below the user specified bit rate, wherein the outer loop module freezes the quantization step sizes in all the remaining critical bands and exits quantization of the current frame when the number of bits consumed in quantizing the critical bands is at or below the user specified bit rate, wherein the outer loop module increments quantization step sizes of the remaining critical bands by the predetermined quantization step size, wherein the outer loop module determines whether all the remaining critical bands are at the vanishing point, and wherein the outer loop module increments quantization step sizes until the user specified bit rate is met when none of the remaining critical bands are not at the vanishing point.

20. The system of claim 19, wherein the outer loop module compares the remaining critical bands with a perceptual priority chart when all the critical bands are at the vanishing point, wherein the outer loop module drops the one or more critical bands having a lower perceptual quality as a function of the comparison, wherein the inner loop module determines whether number of bits consumed by the spectral lines in the remaining critical bands is at or below the user specified bit rate in the current frame, wherein the outer loop module freezes the quantization step sizes of all the remaining critical bands when the number of bits consumed by the remaining critical bands is at or below the user specified bit rate, and wherein the outer loop module drops one or more critical bands until the user specified bit rate is met when the number of bits consumed by the remaining critical bands are above the user specified bit rate.

21. An apparatus for encoding an audio signal, comprising:
means for partitioning an audio signal into a sequence of successive frames;

means for obtaining the spectral lines in each frame and forming critical bands by grouping sets of neighboring spectral lines; and

means for quantizing critical bands, wherein the means for quantizing further comprises:

means for determining whether number of bits consumed by the spectral lines in the critical bands is at or below a user specified bit rate in a current frame, and wherein the means for determining whether the number of bits consumed by the spectral lines in the critical bands is at or below the user specified bit rate freezes quantization step sizes in all the critical bands when the number of bits consumed is at or below the user specified bit rate; and

means for incrementing quantization step size of each critical band by a predetermined quantization step size when the number of bits consumed is above the user specified bit rate, and wherein the means for incrementing quantization step size of each critical band determines whether one or more critical bands are at a vanishing point.

22. The apparatus of claim 21, wherein the vanishing point comprises a quantized value of substantially close to '0'.